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STUDY OF HUMAN INTERACTION VARIABLES IN SUCCESSFUL AND UNSUCCESSFUL TEACHER TEAMS.

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*TEAM TEACHING, *SURVEYS, *TEACHER EVALUATION, *TEACHER ATTITUDES, *PRINCIPALS, TEACHER PARTICIPATION, UTAH, LOGAN

THE OBJECTIVE WAS TO INVESTIGATE THE VARIABLES LEADING TO THE SUCCESS OR FAILURE OF TEACHER TEAMS. THIS PAPER REPORTS A SURVEY OF 533 TEAM MEMBERS AND 242 PRINCIPALS FROM SCHOOLS IN WHICH TEAM TEACHING WAS EMPLOYED AND AN ASSESSMENT OF 63 TEACHERS FROM 15 TEAMS. A SURVEY OF 242 PRINCIPALS INDICATED THAT (1) A SUBSTANTIAL PERCENTAGE OF CURRENT TEAM TEACHING PROGRAMS IS EXPLORATORY, EMPLOYING ONLY ONE TEAM, (2) PLANNING IS INADEQUATE, (3) THE ORGANIZATIONAL AND INSTRUCTIONAL TECHNIQUES ARE FLEXIBLE CLASS SIZE, ABILITY GROUPING, AND INDIVIDUALIZED INSTRUCTION, (4) THE ADMINISTRATIVE PROBLEM OF ADAPTING AVAILABLE SPACE TO TEAM TEACHING IS DIFFICULT, AND (5) LARGE SCHOOL PRINCIPALS WORK WITH TEAM LEADERS, WHILE SMALL SCHOOL PRINCIPALS WORK WITH THE ENTIRE TEAM. A SURVEY OF 533 TEACHERS INDICATED THAT (1) THE MAJORITY OF TEAMS WORK WITH PUPILS AT A SINGLE GRADE LEVEL, USUALLY ELEMENTARY, (2) TEACHER SPECIALIZATION IN TEACHING AND PREPARATION OF CURRICULAR MATERIALS IS THE USUAL PATTERN, AND (3) THE MORE PREDOMINANT STRUCTURE HAS NO OFFICIAL LEADER OR LITTLE OR NO ADMINISTRATIVE AUTHORITY. PRINCIPALS AND TEACHERS SURVEYED REPORTED THAT THE TEACHER CHARACTERISTICS NEEDED FOR TEAM TEACHING ARE FLEXIBILITY, ABILITY TO COOPERATE AND WORK EFFECTIVELY WITH OTHER ADULTS, ORGANIZATIONAL SKILL, CONSIDERATION FOR OTHERS, AND ABILITY TO ACCEPT CONVENTIONAL CRITICISM. THE ASSESSMENT OF THE 63 TEACHERS OF 15 TEAMS INDICATED THAT THE MORE EFFECTIVE TEACHERS PARTICIPATE IN PLANNING SESSIONS, AND THESE TEACHERS SCORED HIGHER ON A PEER RATING-RANKING INTERVIEW. (GC)

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STUDY OF HUMAN INTERACTION VARIABLES IN SUCCESSFUL AND UNSUCCESSFUL TEACHER TEAMS

Cooperative Research Project No. S-159

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The Problem

The problem of this study was to explore the interactions between members of teaching teams and collect preliminary data on the characteristics of more and less successful teams and of their individual members. Team teaching is defined by Shaplin (1964) as . . . "a type of instructional organization, involving teaching personnel and the students assigned to them, in which two or more teachers are given responsibility, working together, for all or a significant part of the instruction of the same group of students." (p. 15)

Shaplin's definition delineates the essential elements of the approach. In practice, team teaching programs vary greatly and may include many features not encompassed in the above definition such as flexible scheduling, use of teacher aides, use of new educational media, ability-grouping, and large group instruction.

The Ford Foundation's Fund for the Advancement of Education has sponsored several large projects involving the use of team teaching. Evaluation of the results of these projects has been limited for the most part to a few enthusiastic testimonials by teachers who participated. As Shaplin (1964) points out, most of the available literature on team teaching "... presents a curious mixture of horatory confidence and unsupported optimism; and the contents are generally limited to brief descriptions and overgeneralized statements of objectives and results." (p. 4)

A "Common Sense" appraisal of team teaching, however, suggests that this approach may lead to better education under some conditions (Brownell and Taylor, 1962). For example, team teaching may improve

subject matter competence by allowing each teacher to specialize in a specific area of his subject. It permits use of large group instruction for presentation of certain types of subject matter, which may give teachers additional time for preparation, individual help and other activities. By using the less skilled teacher aides for small discussion groups and routine work, some improvement might occur in the efficiency of the educational system.

Because team teaching has been accepted rather uncritically by a number of schools and has already been abandoned by many of the schools that adopted it two or three years ago, an investigation of the variables leading to the success or failure of teacher teams appears to be highly justified. This exploratory study was designed to lead to more extensive and better controlled research concerned with such topics as establishing broader and more measurable criteria for judging the effectiveness of teacher teams, prediction of success of teacher teams, diagnosing and correcting the deficiencies of ineffective or unsuccessful teams, and defining criteria to use in organizing teams that would make optimum use of available teaching personnel.

Objectives

The main objective of this project was to build a foundation for more rigorous research in a new and largely unexplored area. The specific pilot study objectives include:

(1) To develop greater insight into the actual operation of team teaching programs, so that the theoretical and experimental work of the behavioral sciences can better be applied to the study of teacher team behavior.

(2) To survey team teaching activities in ten Western states in order to classify these programs in terms of their major characteristics and to locate subjects for later phases of the exploratory study.

(3) To develop and make preliminary tests of theoretical constructs relative to the way human interaction variables influence the roles, perceptions and attitudes of team members.

(4) To identify and try out measurement techniques that may differentiate between teams and team members who achieve different levels of success in the team teaching situation.

Related Literature

Pertinent previous research falls into two major catagories: (a) research related to leadership, interactions, and efficiency of small working groups, and (b) research on team teaching in the secondary schools.

(a) Small Group Research: Small group research appears to have considerable promise in terms of developing both a theoretical rationale and usable techniques for the proposed study, although virtually none of this previous research has been done in the school setting. Studies having theoretical implications for the proposed study include: Ackerman, (1955), Carter (1954), Hemphill (1954), Hollander,(1956), Theodorson, (1962), and Zander (1956) on small group dynamics; Cattel (1953) on personality theory; and Schutz (1955) on small group productivity.

Studies and reports that have value to us primarily because of methodological data and measurement approaches that may be adapted to the

proposed research include: Ansbacker, (1951), and a series of articles by Bass and his associates (1951a, 1951b, 1953, 1956) on leaderless group discussion; Bales (1951) on observational methods; Schutz (1955) on productivity measures; and Cronbach et. al. (1953) and Fiedler (1956) on the ASO measure as applied to small working groups. The research carried out by Berkowitz (1953, 1954) in which leader status, productivity, and cohesiveness were measured under different working conditions seems to have direct implications for the proposed research. This is also true of the work of Rosenberg et al (1955) which is one of the few studies in which the membership of small working groups was manipulated to appraise the effectiveness of different combinations of the same individuals.

Cattell's (1953) research, in which he identified leadership types and developed multiple regression equations to predict leadership behavior from personality variables provided much valuable information having implications for the proposed study. Cowan's work in 1955 and Hartshorn's in 1956 also relate to personality manifestations in small groups. The work of Haythorn (1953) and his associates (1956) and of Olmsted et al (1956) also have implications concerning personality variables in small groups.

Halpin's research (1955) provides one of the few attempts to apply some of our knowledge about small group dynamics to education, but it is limited to the performance of educational administrators. Ronning and Horrocks (1961) also worked in an educational situation. They applied small group dynamics to a college teaching situation and attempted to identify variables related to group effectiveness.

(b) Team Teaching Research: Unfortunately, research concerned with team teaching in the secondary schools is extremely sparse. Of 77 articles referred to in Education Index on this topic between July, 1959, and January, 1964, only one reports a research project. This project, comparing team teaching with "conventional" methods is not pertinent to the proposed research. The remainder are project reports that have some use as sources of ideas but provide little or no quantitative data, or they are opinion articles written by (1) those who have tried team teaching and like it or (2) those who have tried team teaching and do not like it. Review of a sampling of these opinion articles indicates that they can contribute little on the proposed research. Since January, 1964, a few studies have been conducted that provide important research evidence.

Cunningham (1964) carried out a study involving 31 teacher teams made up of a total of 99 secondary school teachers. The criteria for individual and team effectiveness was based on ratings by three to five judges who had worked in close association with the teams prior to the research. Judges established the level of performance in team teaching based on 16 performance factors considered important in the team teaching situation. Cattell's 16 PF form B was also administered to the teachers. A chi square comparison between biographical characteristics and team performance indicated there was no significant relationship between team performance and age, sex, teaching experience, and recency of college training. There were significant relationships beyond the .01 level between team performance and the degree held, years performed as a team leader, years performed as a team member, and whether or not the individual was teaching in his major or minor or in another field. In order to

identify personality traits characterizing members of high performance and low performance teams, the teams were placed in four catagories on the basis of total team performance. There were 28 teachers in the highest rated teams and 30 teachers in the lowest rated teams. The t-test was used to compare the mean tests of teachers in these two extreme groups on each personality characteristic. Mean differences between the two groups were significant at the .01 level for all of the factors covered on the 16 PF. Teachers in the high validation group were particularly high on cooperativeness, emotional stability, aggressiveness, enthusiasm, conscientiousness. In general the teachers in the low group were found to have the opposite characteristics, being low on the aforementioned variables and having scores indicating a high degree of sensitivity, suspiciousness, insecurity, and excitability. A comparison of the personality scores of team members versus team leaders showed that the team leaders had more favorable scores on every factor. This study suggests that the personality characteristics of team members probably play an important role in team success.

An important two year study carried out by Lambert, et. al. (1964) provides important information on differences between team teaching and self contained classrooms at the elementary school level. The entire pupil population of one elementary school (210 pupils) was randomly divided into experimental and control groups. The experimental group was taught using a team organization and the control group was taught in normal self contained classrooms. Teachers in each of the two treatments were selected from those believing that the treatment they were using was

better. A second control group was taken from another school. The study was concerned with student teacher interaction, student adjustment and achievement, teacher awareness of pupil characteristics, student absenteeism, discipline problems, and classroom social structure. Flanders' model for measuring classroom interaction revealed two significant differences: team teachers asked fewer questions and also criticized and attempted to justify their authority more often than teachers in self contained classrooms. Only one significant difference emerged out of the eighteen comparisons on the California Test of Personality. Pupils on the team organization were lower in personal adjustment than pupils in self contained classrooms during the first year of the study. A number of achievement differences were found. Pupils in the team organization developed significantly higher achievement in grades one and two. In other grades there were no significant treatment differences in the experimental school. In the other control school, pupils in self contained classrooms made greater achievement. Teachers in self contained classrooms were found to be more aware of their pupils characteristics than team teachers. When team teachers worked together their pooled knowledge exceeded the knowledge of teachers in the self contained classroom. No significant differences occurred between the two systems on absenteeism, disciplinary problems or classroom social structure. This study, although well designed, cannot be considered conclusive because of the small number of teachers involved. Only two teams were used, one for grades 1-3 and one for grades 4-6. The composition of the intermediate team changed considerably during the study and in a study involving so few

teachers, there is always considerable doubt as to whether teachers in the two treatments are comparable in terms of overall teaching skill.

In addition to pertinent theoretical work in small group behavior, some articles concerned directly with team teaching theory have been published. Shaplin's work (1964) constitutes the beginning of a theoretical foundation upon which research, evaluation, and development of team teaching can be built. He draws most heavily from the small group research of the social psychologists, but also points out relationships between team teaching and current theory in the fields of sociology, administration, and personnel management. Based upon their experience with one team teaching program, Brownell and Taylor (1962) approach team teaching theory from the direction of school practice instead of behavioral science. They discuss some of the assumptions that appear to provide the theoretical foundation for many current school practices, and demonstrate how these assumptions relate to the hypothetical advantages of team teaching. They also develop definitions and models of team teaching that, if used, could help clarify the thinking and communications of persons working in this field.

The Survey

Procedures

In the spring of 1964 a preliminary questionnaire was sent to 598 district superintendents and 299 county superintendents in several Western States. The purpose of this preliminary questionnaire was to identify school districts in which team teaching activities were underway. The criteria for selecting district superintendents differed for

different states because the variations in state education directories are such that sufficient data are not available to apply a single criterion. Generally, however, the larger districts in each state were contacted. County superintendents were contacted because it was expected that they could help locate smaller districts having team teaching programs. This approach was not too productive, however, as only about 60 districts were contacted as a result of the county superintendent's responses. A total of 604 responses were obtained in this preliminary survey. Of those superintendents responding, 182 indicated that team teaching programs were being conducted in their district and agreed to cooperate in the survey phase of the project. During the spring and summer, visits were made to a number of team teaching programs and preliminary forms of the survey instruments were developed. In the fall of 1964, questionnaire packets were mailed to schools that had been listed by the superintendents as having team teaching programs. Each packet contained a questionnaire for the principal and five team member's questionnaires. The most experienced member of each team in the school was to respond on the team member's questionnaire. The principal was asked to request additional team member's questionnaires if his school had more than five active teams.

Results of the Principal's Questionnaire

A total of 443 principal questionnaires were sent out. Of this number 242 were returned in time to be included in this analysis. Sufficient responses were obtained to analyze responses of principals from elementary, junior high, and high schools separately, when neces-

Table 1

Year in Which Team Teaching was Started
at the Responding Schools

Year	Elem. N	Elem. %	Jr. H. S. N	Jr. H. S. %	High School N	High School %	Totals N	Totals %
1955	1	1.3					1	.4
1956			1	2.0			1	.4
1957								
1958			3	5.9	4	3.5	7	2.9
1959	9	12.0	2	3.9	7	6.2	18	7.5
1960	5	6.7	7	13.7	11	9.7	23	9.6
1961	3	4.0	13	25.5	21	18.6	37	15.5
1962	16	21.3	5	9.8	19	16.8	40	16.7
1963	28	37.4	8	15.7	34	30.2	70	29.4
1964	13	17.3	12	23.5	17	15.0	42	17.6
Totals	75		51		113		239	

Table 2

Number of Active Teams in the Team Teaching Schools

Number of Teams	School Type: Elementary %	Jr. High S. %	High School %
1	42.7	29.4	38.3
2	27.9	37.2	14.3
3	10.3	13.7	10.7
4	5.9	5.9	10.7
5	1.5	2.0	4.5
6	8.8	7.8	.8.0
7	2.9	2.0	4.5
8			1.8
9		2.0	.9
More than 9			6.3

sary. The median enrollment was 511 at elementary level, 815 for junior high schools, and 1491 for high schools.

It may be seen from Tables 1 and 2 that a large number of schools are still trying out team teaching on an exploratory basis. Nearly half of the team teaching programs reporting were established in 1963 or later. At the elementary level, 42.7 per cent of the team teaching schools reported only one team, while 38.3 per cent of reporting high schools and 29.4 per cent of reporting junior high schools had but one team.

A point emphasized in many of the reports of team teaching projects is the importance of pre-planning to the success of the program. It is generally recommended that all team members take part in the pre-planning sessions. These sessions normally require a considerable amount of extra work on the part of the teacher and in many programs this work is accomplished by employing teachers during the summer preceeding the start of the team teaching program. Principals were asked to indicate what funds were available for pre-planning at the time team teaching was established in their schools. The results may be found in Table 3. These results indicate that relatively few programs had the type of financial support generally considered necessary to carry out adequate pre-planning. In all three types of schools, the percentage having no funds for pre-planning exceeds the percentage having funds to pay all team members. It will be noted that the situation was generally more satisfoctory at the high school level than at the elementary and junior high levels.

Table 3

Funds Available for Preplanning in the Responding Schools

Preplanning Funds	Responses Elementary %	Junior High S. %	High School %
Funds were not available to pay teachers to do preplanning	42.7	39.2	36.5
Some teachers paid to do pre-planning--usually 1 or 2	13.2	9.8	16.1
All team members were paid during pre-planning	19.1	19.6	30.4
Other, or no response	25.0	31.4	17.0

Table 4

Types and Amount of Preplanning Reported in Responding Schools

Preplanning	Responses* Elementary %	Junior High S. %	High School %
Very little pre-planning was possible	30.9	15.7	15.2
Most planning took place after the team was operating	51.5	39.2	31.3
Planning done by one or two members only	26.5	31.4	41.1
Planning done by administrators	4.4	3.9	.9
Planning done by all team members during summer before starting team teaching	42.6	60.8	59.8
Other preplanning procedures	13.2	13.7	15.2

* Some respondents checked more than one catagory.

If we accept pre-planning by all team members during the summer before starting team teaching activities as the preferred method of preparation, it will be seen in Table 4 that about one-half of the responding principals reported this procedure although in many cases teachers were not paid for this work. Sizable percentages of schools at each level indicated using planning procedures that have serious weaknesses. The "plan as you go" method was employed by nearly half of the elementary and junior high schools responding. This technique leaves much to be desired because the day to day demands on team teachers have generally been found to be so heavy during the first year of the program that any significant amount of long range planning is impossible.

Delegating the pre-planning to one or two team members was practiced at all three levels with this procedure being mentioned most frequently at the high school level. Although pre-planning by one or two members is certainly superior to no pre-planning at all, it has the serious deficiency that those members not involved will identify themselves less with the team teaching objectives and may show considerable less motivation. If each team member is to regard himself a full member of the team, he should have an active role in planning and decision making.

A number of organizational and instructional techniques are often used in conjunction with team teaching programs. The activities intergrated with the team teaching programs reported in this survey are given in Table 5. Most schools reported using several of these techniques. At elementary level, ability grouping, flexible scheduling, use of clerical and teaching aides, individualized instruction, and flexible class size were all utilized by more than 60 per cent of the responding

schools. At the secondary level, ability grouping and flexible class size were utilized most often in conjunction with the team teaching program. These results generally indicate that elementary schools are making much wider use of special instructional and organizational techniques than are junior high schools and high schools.

Setting up and conducting a team teaching program often involves certain administrative problems. The problems most frequently encountered were identified in the review of the literature and the preliminary survey carried out as part of this project. These problems were listed in the principal's questionnaire and each principal was asked to indicate the seriousness of each problem in his school. The responses given by the elementary, junior high, and high school principals may be found in Table 6. The principals rated each problem on a five point scale using the following catagories: a) "our most difficult problem," b) "a very difficult problem," c) "a moderately difficult problem", d) "a minor problem," e) "little or no problem." If we assign an arbitrary weight of three for "most difficult problem," two for "very difficult problem," and one for "moderately difficult problem," we find that the problem having the largest weighted score for elementary principals was "adapting available space to team teaching." The next larger scores were obtained by the problems: "getting enough financial support to provide the needed materials;" "developing a satisfactory schedule;" "organizing and staffing effective teams;" and "getting teams to define their objectives."

Using the same system of weighting for secondary principals, we again find that adapting available space to team teaching was perceived as the most serious administrative problem.

Table 5

Organizational and Instructional Techniques Utilized in Team Teaching Programs

Technique	Elementary %	Junior High %	High School %
Flexible Scheduling	77.9	45.1	35.7
Flexible class size	76.5	60.8	72.3
Ability Grouping	75.0	68.6	72.3
Individualized Instruction	66.2	60.8	50.0
Clerical and/or teaching aides	60.3	35.3	58.0
Non-graded classes	44.1	5.9	8.0
Televised Instruction	33.8	13.7	8.9
Programmed Instruction	27.9	17.6	18.8
Use of Student teacher or intern	2.9	3.9	0.6
Others	10.3	9.8	10.7

Table 6

Problems reported by Principals Relative to Establishing and Conducting Team Teaching

Problem	Level of Difficulty* --Elementary (N=68)-- A%**	B%	C%	D%	E%	--Junior High (N=51)-- A%	B%	C%	D%	E%	--High School (N=112)-- A%	B%	C%	D%	E%
Developing a satisfactory schedule	4.4	13.2	25.0	36.8	19.1	5.9	9.8	17.6	35.3	23.5	3.6	9.8	25.0	38.4	20.5
Selling the community on team teaching	1.5	0	8.8	35.3	52.9	0	0	7.8	19.6	62.7	0	2.7	3.6	31.3	63.4
Organizing and staffing effective teams	2.9	7.4	32.4	32.4	20.6	7.8	11.8	31.4	27.5	11.8	6.3	8.9	30.4	36.6	17.0
Maintaining harmony among teachers on the teams	1.5	4.4	13.2	36.8	38.2	2.0	3.9	7.8	29.4	45.1	2.7	1.8	9.8	41.1	43.8
Getting teachers to assume new responsibilities	2.9	4.4	14.7	45.6	30.9	2.0	7.8	17.6	35.3	27.5	1.8	4.5	17.0	34.8	38.4
Getting enough financial support to provide nedded materials,etc.	8.8	8.8	25.0	25.0	26.5	7.8	7.8	19.6	19.6	35.3	8.0	10.7	18.8	35.0	29.5
Adapting available space to team teaching	7.4	22.1	10.3	27.9	27.9	13.7	19.6	23.5	19.6	13.7	10.7	12.5	21.4	35.0	24.1
Adapting the curriculum to fit team teaching	5.9	2.9	26.5	35.3	25.0	3.9	5.9	19.6	37.3	23.5	.9	4.5	20.5	43.8	26.8
Resentment of teachers not in team teaching	0	1.5	4.4	23.5	66.2	3.9	0	5.9	13.7	64.7	0	.9	1.8	20.5	76.8
Creating enthusiasm among teachers	0	0	8.8	39.7	50.0	0	3.9	9.8	33.3	39.2	1.8	2.7	11.6	31.3	51.8
Retraining and orienting teachers	4.4	8.8	10.3	45.6	25.0	2.0	7.8	31.4	23.5	25.5	2.7	4.5	9.8	46.4	33.9
Getting teams to define their objectives	4.4	10.3	22.1	41.8	16.2	2.0	3.9	0	21.6	25.5	2.7	5.4	14.3	42.9	30.0

* A. Our most difficult problem
B. Very difficult problem
C. Moderately difficult problem
D. A minor problem
E. Little or no problem

**Up to 6% of sample failed to respond to some of the problems listed.

When we compare the response percentages of principals at the three levels, a number of interesting differences emerge between the percentage of principals in each group who check each problem as "moderate," "very difficult," or "most difficult."

The greatest difference occurs in problem 12, "getting teams to define their objectives." Over 36 per cent of the elementary principals listed this problem in the top three rating catagories as compared with only about six per cent of the junior high school principals and 22 per cent of the high school principals. Large differences also occurred in the response pattern for problem 11, "retraining and orienting teachers." Among junior high school principals, 41 per cent checked this problem as compared with only 17 per cent of the high school principals and 23 per cent of the elementary school principals. Principals from the three levels did not differ by more than 10 per cent on any of the other problem areas.

Another topic explored in the principal's questionnaire was the usual working relationship that was established between the teacher teams and the principal. It may be seen in Table 7 that by far the most common working relationship at the elementary and junior high school levels was to carry out team business requiring administrative decisions in meetings between the principal and the team as a group. At the high school, however, the most common procedure was to carry out such business in meetings between the principal and the team leader. This difference probably reflects the fact that the high schools involved in team teaching in this survey were considerably larger than the elementary and junior high schools and suggests that the same methods of administrative control

Table 7

The Principal's Working Relationship With the Team

Relationship	Elementary %	Junior High %	High School %
Team business requiring administrative decision is carried out between team leader and principal.	13.2	21.6	40.3
Such business is carried out between principal and individual team member most concerned with the decision.	14.7	9.8	12.3
Such business is carried out in meetings between principal and the team as a group.	42.7	41.1	25.4
Team Business carried out between principal and team leader or entire team.	8.8	21.6	8.8
No regular working relationship.	20.6	5.9	13.2

Table 8

Working Relationships between Teams and Principals for Secondary schools of Different Size and with Different Amounts of Experience in Team Teaching

Relationship reported by Principal	Large Schools (52) %	Medium Schools (71) %	Small Schools (49) %	Under 2 years (71) %	2 - 3.99 years (60) %	4 years or more (36) %
Team business requiring administrative decisions is carried out between the team leader and principal.	44.2	29.6	32.7	35.2	33.3	39.0
Such business is carried out in meetings between principal and the team as a group.	17.3	31.0	38.8	29.6	30.0	27.7
Such business is carried out between principal and the individual team member who is most concerned with the decision.	9.6	9.9	14.3	12.7	8.3	13.9
Principal has established no regular working relationship.	17.3	12.7	2.0	11.5	10.0	8.3
Principal works with leader and/or entire team.	11.5	16.9	12.2	11.5	18.8	11.1

might not be equally appropriate. It is interesting to note that several principals at each level report no regular working relationships with the teacher teams.

In order to check the possibility that the type of administrative control is influenced by the size of the school, the secondary schools were divided into three classifications on the basis of size so that the working relationships between the principal and the teacher teams could be compared for different sized schools. These comparisons may be found in Table 8. It will be noted that principals of large secondary schools most frequently work with the team leader while those from medium and small secondary schools most frequently work with the entire team. It will also be noted that a somewhat larger percentage of the principals of smaller schools reported working directly with the individual team member.

It was also hypothesized that the working relationship between the team and the principal might vary for secondary schools having different levels of experience with team teaching. This comparison may be found in Table 8. Although there is some tendency for the principal to work more often with the team leader and less often with the entire team in the more established programs, it will be noted that this tendency is slight.

Results of the Teacher's Questionnaire

A total of 533 team member replies were obtained. Although not all teachers gave usable replies to all questions, the data reported are based on the responses of at least five hundred teachers representing five hundred different teacher teams. Approximately 150 teachers responded

from elementary schools, 100 from junior high schools and 250 from high schools. Responses from these three levels were usually analyzed separately to provide comparative data.

The length of experience of the responding teachers in team teaching programs was generally short. Only about five per cent of the responding teachers reported over three years of experience in team teaching while over half have had one year or less of such experience. When it is remembered that the questionnaire was completed by the team member having the most experience in the team teaching program, it is apparent that the majority of teachers currently involved in these programs have had relatively little team teaching experience.

Information on the grade combinations taught by teacher teams would seem to be an important feature in describing the team. Data from the elementary school teacher teams showed that the predominant pattern was for each team to teach a single grade. Of the elementary teams responding, 77 taught pupils in a single grade, 35 taught pupils in two grades, and 26 taught pupils in three grades. In addition there were a few non-graded programs. Team teaching was found considerably more often in fourth, fifth, and sixth grades (97 teams) than in the primary grades (37 teams).

At the junior high school level, 77 of the 101 responding teams worked with a single grade level; while at high school, 177 of the 255 respondents were members of teams that worked with a single grade level. Thus, in all three types of schools we find that the majority of reporting teams worked with pupils at a single grade level. In view of the large proportion of early team teaching programs that cut across several grade levels, these results are somewhat surprising.

The importance of the team planning session has been emphasized in most of the progress reports published by participants in early team teaching programs. Polos (1965) who worked in the Claremont project reports that in a survey he conducted of team teaching a frequently mentioned disadvantage was friction that developed among team members due to lack of time for proper planning. The importance of planning was also emphasized in the results of the NASSP survey (Singer 1962). Writers in the field give considerable attention to the team planning session and generally recommend daily sessions held during school hours and attended by all members of the team. Data from the Utah State University survey showed that at the elementary school level only about one-fifth of the teams reported daily team planning sessions. Nearly one-third reported weekly sessions and another thirty percent reported no regular schedule. The results for junior high school and high school teams were somewhat more encouraging but even in these schools more than one-fifth of the responding teams had no regular schedule for their planning sessions. If we are to accept the recommendations made by participants in many of the early team teaching projects, we must conclude that the majority of the teams responding in this survey do not have a sufficient number of team planning sessions.

It is generally recommended that team planning sessions be held during regular school hours. Data on the times when planning sessions were held for the teams in our survey showed that only about one-third of the elementary school teams held their meetings during regular school hours. The picture is somewhat brighter at the secondary level where nearly two-thirds of the team planning sessions were reported held during regular

school hours. Although a sizable percentage of elementary schools cling to the after-school team planning session, it is encouraging to note that very few secondary schools regularly schedule their planning sessions for after-school hours.

Attendance at team planning sessions is extremely important if the teachers involved are to function as a real team rather than a collection of independent individuals. In reviewing our attendance data we find 85 per cent of the respondents reported all team members were usually present at the team planning sessions.

Early team teaching programs varied considerably in the number of subject areas taught by the same team. In some of the early programs the members of a single team were responsible for substantially all of the instruction that a given group of students received. In other programs the team was limited to one broad subject area such as communication skills. We were therefore interested in learning the number of subject areas taught by the teacher teams responding in our survey. It was found that at the elementary level the predominant pattern was for a single team to teach all or most of the subjects in the curriculum. This pattern seems to be a logical extension of a self-contained classroom that has dominated the elementary school for so many years. At the junior high school level, however, the predominant pattern appeared to be for teams to teach one or two subjects only, with nearly one-half of the responding teams teaching in a single subject area and less than one-fourth teaching three subjects or more. At the high school level, the pattern followed by nearly 80 per cent of the responding teams was to teach within a single subject area such as communication skills or science.

Rather detailed data were also collected on the specific subject combinations taught by the responding teams. These data are too voluminous to present in detail, but a few of the most frequently found subject matter combinations seem worthy of mention. At the junior high level, teams working with combinations of language arts and social sciences including history and geography were by far the most common. The most frequently encountered three-subject combination at the junior high school level involved language arts, mathematics, and social sciences. At the high school level, the most frequently encountered two-subject combination was language arts and history. None of the three or four subject combinations occurred frequently enough at high school level to be worthy of attention.

In many team teaching programs, a major goal is to permit teachers to develop subject matter specialities. Data concerning the degree to which team members specialize within their subject fields showed a fairly high level of specialization. The most frequently encountered pattern at all three levels was for each teacher to do most of the teaching and planning within his defined speciality. More than 40 per cent of respondents at all levels reported this procedure. The next most common procedure, reported by about one-fourth at each level, provides for considerable specialization in lesson planning but no specialization in teaching after the plans have been made. All in all, however, the great majority of teams have established some degree of specialization for each team member. Only about two percent of the responding teams reported no specialization in either planning or teaching.

Table 9

Persons Performing Specialized Functions in Teaching Teams

Function	Elementary (N=151)**							Junior H.S. (N=102)							High School (N=256)						
	1*	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Educational Counseling		100	4	17	3		1		60	2	26	8			2	93	8	118	26		
Personal Counseling		104	9	12	3		1		61	1	23	13			1	105	11	91			2
Prepare Graphics	27	69	9	3	2	12		26	43	12	5	4	6	1	43	133	11	14	5	28	3
Operate Audio-visual Equip	6	101	18	6	2	8		8	61	12	11	4	2		12	172	25	20	7	8	1
Library Research	6	103	15	4	2	4		2	76	3	6		3		8	191	17	8	5	12	2
Work with Slow Pupils	3	85	42	3	3	1	2	1	69	15	5	2	3	1	1	182	30	9	6	5	
Remedial Instruction	2	74	31	17	9		5		56	14	16	1	3	3	1	147	28	33	5	5	
Work with Advanced Pupils		94	36	5	6				78	14	3		1		4	178	38	5	2	2	

*Persons Performing Function:
1. Clerical or teacher aide
2. All team members (excluding aides)
3. One designated team member
4. Personnel not on team
5. All members plus personnel not on team
6. Clerical aide plus team members
7. One team member plus personnel not on team

**Totals in each row are less than total respondents because some respondents failed to reply or made reply not fitting any of the above catagories.

Team teaching, which has altered many of our established ideas about the duties of the teacher, has also raised certain questions on the nature and scope of the responsibilities of teaching teams. One of the items in our survey instrument was aimed at determining who normally performs each of a number of specialized functions in schools in which team teaching is employed. The results may be found in Table 9. It will be noted that all team members generally share the responsibility for these functions at the elementary school level. This general pattern is also maintained at the junior high and high school levels. It should be noted, however, that at all three levels a significant number of the responding teams have delegated these responsibilities to a single team member or to some combination of team members and personnel not on the team. The tendency for all team members to share the responsibility for the functions listed is strongest in the elementary school and weakest in the high school where personnel not on the team have traditionally been provided to perform such functions as counseling.

A review of grouping procedures revealed that ability grouping was reported by about 70 percent of the respondents making it one of the most common organizational techniques incorporated with team teaching. The specific types of grouping employed by the responding teams may be found in Table 10. It will be noted that at all three levels the most frequently encountered grouping technique involved exposure of all pupils to the same basic program with some adjustments in rate and content to fit this basic program to pupils of different ability. This procedure is more typical of enrichment programs than of the more extreme forms of homogeneous grouping. Perhaps the most noteworthy aspect of

Table 10

Type of Grouping Method Employed by Teacher Teams

Grouping Method	Elem. %	Jr. H.S. %	High School %
All pupils are given the same basic program with some adjustments in rate and content.	39.0	54.9	66.4
Pupils are divided into two ability levels within each grade.	5.3	5.9	9.0
Pupils are divided into three ability levels within each grade.	13.9	20.6	10.5
Pupils are divided into two or more ungraded tracks.	7.3	3.9	3.5
Instruction is individualized with each pupil moving at his own rate.	4.6	0.0	.8
Four or more ability levels are used.	6.6	1.0	1.2
Grouping varies with subject and ability level.	11.2	6.9	3.9
Combination of heterogeneous and ability grouping.	5.3	2.0	1.9
Ability grouping for math and reading only.	5.3	0.0	.4
Other grouping plans and combinations.	7.9	9.3	11.3

Table 10 is the variety of techniques being employed by teacher teams to adapt the curriculum to pupils of different ability levels. At this point it is difficult to predict which direction these varied efforts will take as team teaching programs are developed and tried in an increasing number of schools.

Another area where many of the early team teaching programs differed substantially concerns the leadership structure of the teacher team. Some programs such as the Norwalk Plan and the Lexington Project have placed considerable emphasis on establishing a well defined leadership hierarchy as a means of providing additional recognition to capable and experienced teachers. Others have visualized the teacher team as a group of equals, none of whom had any specific leadership responsibilities (Bair and Woodward, 1964). The leadership structures that have emerged in the teacher teams in our survey are summarized in Table 11. It may be seen that the "administratively designated leader" is found in less than one-third of the teams at any level although this structure occurs somewhat more frequently at the secondary level than at the elementary level. The vast majority of teams at all levels have either no official leader or have a chairman who conducts meetings but has little or no administrative authority. These data suggest that most teacher teams prefer to operate as a group of peers rather than having a definite administrative hierarchy within the team. The data also suggest that the teacher team may not be able to serve the function of providing intermediate levels of recognition or administrative authority as was attempted in a number of the early team teaching experiments.

Table 11

Leadership Structure in Teacher Teams as Reported by Team Members

Structure	Elementary N	Elementary %	Jr. H. S. N	Jr. H. S. %	High School N	High School %
The team has an officially designated team leader who has definite administrative responsibilities.	36	23.8	29	28.4	83	32.4
The team has a chairman who presides at meetings but has no special administrative responsibilities or authority.	20	13.2	14	13.7	29	11.3
The team has no designated leader or chairman. Purely cooperative.	59	39.1	29	28.4	59	23.0
One member of the team is generally recognized as leader, although he holds no such position officially.	15	9.9	18	17.6	58	22.6
The chairmanship or leadership of the team rotates at regular intervals.	12	7.9	4	3.9	12	4.7
Team has regular chairman but leadership is taken by teacher whose specialty is being taught.	3	2.0	4	3.9	8	3.1
Other leadership structure.	5	3.3	2	2.0	9	3.5

Adapting to Team Teaching

The second objective of the Utah State University survey was aimed at learning teacher and principal perceptions of teachers who adapt well to the team teaching situation and those who experience difficulty in adapting to the team teaching situation. It seems obvious from observing teams in action that team teaching is different from so-called conventional teaching in a number of ways. Many of these differences certainly stem from the need for the teacher in a team to work in much closer cooperation with other teachers than is likely to be required in a self-contained classroom at the elementary level or a departmentalized program at secondary level. The investigators were particularly interested in this part of the data because it was felt that the composite judgement of the teachers and principals involved in the survey would provide some excellent leads that could be followed in later research on factors related to teacher success in the team teaching situation. In order to avoid leading the respondents, as so often happens when multiple choice survey items are used, unstructured items were developed to collect this portion of the data. The unstructured responses were then read, a code system was developed, and the responses to these items were re-read and classified according to the code system. The results are given in Table 12 and Table 13. The characteristics listed in these tables are a very brief condensation of the characteristics that were actually developed for coding the responses. For example, flexibility, which was one of the favorable characteristics most often mentioned, had as its complete definition: "Flexible--openminded, willing to listen, can accept ideas and suggestions of others, is adaptable, non-rigid, willing to try new ideas, not set in his ways." This somewhat

repetitive definition was developed from the responses themselves. By listing a number of related types that would be scored under this catagory, we attempted to make the scoring easier and more reliable. Each of the characteristics listed in Tables 12 and 13 had a similar definition.

Let us now examine some of those characteristics often observed in teachers who adapt well to the team teaching situation. When all responses are considered, the most frequently mentioned teacher characteristic was cooperativeness. This characteristic was mentioned by over 49 per cent of the respondents. These quantitative data support the impressions gained by Bair and Woodward (1964) from their work in the Lexington Team Teaching Project. They state that, "A distinguishing characteristic of a teacher entering the team teaching school is his willingness to fully cooperate on an hour-by-hour basis with other members of the profession. This is a major factor in determining who may or may not be a good team teacher." (p. 73)

The second most frequently mentioned characteristic was flexibility, which was listed by over 45 per cent of the respondents. A thorough training in subject matter was the third most frequently mentioned characteristic. More than 23 per cent of the respondents made comments which were classified under this catagory. Other favorable characteristics mentioned by more than 100 of the respondents included imagination, enthusiasm, consideration for others, organizational skill, and student orientation as opposed to subject matter orientation.

Some differences are found in the percentage of respondents from different groups who mentioned different characteristics. With regard to those characteristics most often listed by all respondents, cooperativeness

Table 12

Characteristics of Teachers who Adapt Well to Team Teaching As Perceived by Different Groups

Characteristics	All Principals (N=200) %	Experienced Sec. Principals (N=37) %	Male Sec. Teachers (N=227) %	Female Sec. Teachers (N=87) %	Male Elem. Teachers (N=59) %	Female Elem. Teachers (N=70) %	Total Respondents* (N=643) %
Cooperative	53.5	59.4	36.1	63.2	47.5	62.9	49.1
Flexible	49.5	49.6	26.9	59.8	55.9	65.7	45.3
Thorough training in subject area	23.0	16.2	31.3	29.9	8.5	5.7	23.6
Has organizational ability, a leader	31.0	29.7	18.1	23.0	18.6	20.0	23.0
Is considerate	29.0	29.7	7.9	21.8	30.5	32.8	21.6
Imaginative	22.5	27.0	9.7	25.3	16.9	27.1	18.4
Student oriented	18.0	18.9	12.8	21.8	10.2	22.8	16.5
Enthusiastic	29.5	27.0	7.0	18.4	10.2	8.6	16.0
Willing to put in extra time	21.0	18.9	11.0	14.9	13.6	14.3	15.2
Skilled teacher	20.0	18.9	14.5	9.2	11.9	11.4	14.9
Dedicated teacher	20.0	18.9	11.4	9.2	22.0	7.1	14.3
Emotionally mature	12.0	18.9	14.5	13.8	22.0	11.4	14.0
Not possessive	3.5	2.7	11.0	8.0	22.0	20.0	10.3
Responsible	4.5	8.1	11.4	13.8	10.2	10.0	9.3
Broad and varied academic background	14.0	10.8	8.8	4.6	6.8	5.7	9.3
Can give and take constructive criticism	3.0	2.7	8.8	8.0	10.2	11.4	7.3

*As experienced principals are also included in the "All principals column", they are not added to the total.

and flexibility were mentioned somewhat more often by women than men. In comparing male and female secondary teachers we find that nearly twice as many female teachers listed cooperativeness and nearly three times as many considered creativity or imagination to be important. Female secondary teachers also mentioned flexibility, consideration for others, and student orientation somewhat more often than male teachers. It is interesting to note that the female secondary teachers in general agree rather closely with the principals on the characteristics that they more frequently mentioned for teachers who adapt well to team teaching.

Male elementary teachers most frequently listed flexibility, cooperativeness, and consideration for others. They differ from the male secondary teachers in mentioning flexibility nearly three times as often. They also mentioned creativity or imagination, and consideration for others somewhat more frequently. Secondary teachers of both sexes more frequently mentioned knowledge of subject matter while elementary teachers placed more emphasis upon consideration for others. Principals mentioned enthusiasm and willingness to put in extra time more often than teachers, thus reflecting a different frame of reference than teachers. The total principal's group and the secondary principals having over four years experience with team teaching were generally in agreement on characteristics that they listed. There were some differences between the characteristics listed by male secondary teachers and those listed by principals, with principals mentioning flexibility and cooperativeness more often and placing less emphasis upon subject matter.

The characteristics of teachers who adapt poorly to team teaching are summarized in Table 13. There were generally fewer characteristics

Table 13

Characteristics of Teachers Who Adapt Poorly to Team Teaching As Perceived by Different Groups

Characteristics	All Principals (N=174) %	Experienced Sec. Principals (N=34) %	Male Sec. Teachers (N=201) %	Female Sec. Teachers (N=77) %	Male Elem. Teachers (N=50) %	Female Elem. Teachers (N=66) %	Total Respondents* (N=568) %
Rigid	48.3	41.2	49.8	41.6	46.0	59.1	48.9
Non-cooperative	33.9	38.2	40.3	44.1	44.0	40.1	39.3
Nervous	24.1	26.5	20.4	18.2	16.0	13.6	20.1
Lacks training in subject area	17.2	8.8	22.9	15.6	12.0	4.5	17.1
Self-centered, non-objective	16.1	20.6	15.4	19.5	14.0	21.2	16.7
Lacks teaching skill	17.2	20.6	16.9	7.8	10.0	16.7	15.1
Unwilling to spend extra time	14.9	17.6	12.4	18.2	12.0	10.6	14.3
Inefficient	14.9	14.8	14.4	18.2	10.0	7.6	13.9
Irresponsible	9.2	14.7	17.4	14.3	10.0	18.2	13.9
Inconsiderate	12.1	8.8	10.0	13.0	20.0	12.1	12.1
Lacks enthusiasm	12.6	20.6	13.9	14.3	6.0	4.5	11.8
Possessive	12.1	14.7	5.0	16.9	18.0	15.2	11.1
Can't adapt to team teaching demands	12.6	11.8	11.4	10.4	0	12.1	10.7
Negative or poor attitude	10.3	17.6	10.4	7.8	10.0	12.1	10.2

*As experienced principals are also included in the "all principals column", they are not added to the total.

listed for teachers who adapt poorly than there were for teachers who adapt well to the team teaching situation. A surprising amount of agreement, however, may be found in the frequency that characteristics were mentioned by different groups. For most of the different groups, rigidity was the characteristic listed most frequently. Nearly half of all respondents listed this as a characteristic of teachers who adapt poorly to the team teaching situation. Nearly 40 per cent of all respondents considered the non-cooperative individual a poor risk in the team teaching situation. This characteristic was listed either first or second most frequently by all responding groups. Another characteristic mentioned frequently by most groups was one that we have tentatively classified as nervousness. This rather nebulous adjective identified a catagory that included such descriptive terms as unstable, high strung, quick tempered, emotional under stress, and lacking in self-discipline. No other characteristics were mentioned by more than 20 per cent of the total responding group.

In comparing the various groups listed in Table 13, a number of differences emerged in the percentages mentioning various characteristics. As was the case in Table 12, these differences generally tend to reflect the different frames of reference of principals, elementary teachers and secondary teachers. Among the total respondents, only three characteristics; rigidity, non-cooperativeness, and nervousness were mentioned by more than 100 persons. Other characteristics of teachers who adapt poorly to team teaching that were mentioned quite frequently include self-centered behavior, unwillingness to accept responsibility, lack of teaching skill, or subject matter knowledge, and unwillingness to devote extra time to the teaching job.

The Assessment

Procedures

After completing the survey, the survey data, particularily that concerned with teachers who make good and poor adjustments to team teaching, were used as a basis to identify variables to be explored in the assessment phase of the study. In this phase of the study 15 teams made up of 63 teachers in six California secondary schools were tested, interviewed, and observed. All of the participating schools had well established team teaching programs that had been in operation for two or more years.

The following data were collected on these teachers:

A. Personality measures:

1. California Personality Inventory (CPI)
2. Edwards Personal Preference Schedule (EPPS)
3. Two variables, Personal Relations and General Activity on the Guilford-Zimmerman Temperament Survey (GZTS)
4. Three variables, Emotional Stability, Surgency, and Anxious Insecurity from Cattell's 16 Personality Factor Test (16PF)

B. Group Dimensions: Measures concerned primarily with group dimensions of the teacher teams included:

1. An adaptation of Hemphill's Group Dimensions Descriptions Questionnaire
2. Seashore's Group Cohesiveness Index
3. The Leadership Opinion Questionnaire
4. An adaptation of Fleishman's Supervisory Behavior Description.

C. Interview Data: An individual interview was carried out with each of the participating teachers. The interview collected a quantity of data on teaching background, descriptive information concerning the team, and

also included a number of items aimed at appraising the individual team members attitude towards team teaching. These items included such things as perceptions of the advantages and disadvantages of team teaching, estimate of the effectiveness of the team leader, estimate of the success of the team in carrying out its objectives, and the teacher's estimate of his relative effectiveness in team teaching vs. conventional teaching situations.

D. Interaction Data: At least three team planning sessions were tape recorded for each participating team. All remarks made by team members were then classified into 12 catagories using the Bales method of interaction process analysis.

E. Criterion data: Several criteria were tried

1. The principal criterium of team member effectiveness was based on a combined rating and ranking of each team member obtained from other team members during the interview session. In order to compensate for differences in team size, the team ratings and rankings were converted to normalized standard scores.

2. A second criterium of teacher success which was employed in parts of the analysis was made up by combining each teacher's responses to nine questions obtained during the interview. These questions were designed to reflect the teacher's attitude towards team teaching and were scattered throughout the interview guide.

3. Overall team effectiveness was obtained by using principal rankings.

Results

The first phase of the analysis was concerned with personality score comparisons between teachers in the upper and lower halves of the group on the peer rating-ranking criterion. Single classification analysis of variance was employed. The results of this analysis may be found in Table 14. It will be noted, that although teachers rated in the upper half on the peer rating-ranking criterion generally obtained higher scores on the personality variables the differences were small in most cases. Only two differences reached statistical significance at the .05 level. The higher rated teachers made significantly more favorable scores on the CPI Responsibility subscore and the Guilford-Zimmerman General Activity subscore. In view of the fact, however, that two scores significant at the .05 level could occur by chance from the 30 comparisons it seems unwise to place very much confidence in these two significant differences. It will be noted that personality variables that had emerged as being important in the survey such as cooperativeness, flexibility, and consideration, did not show significant differences in the aforementioned analysis.

The next phase of the analysis was aimed at comparing teams ranked highest by the school principals with other teams in the participating schools on group dimensions measured by our adaptation of Hemphill's Group Dimensions Descriptions Questionnaire and Group Cohesiveness as measured by Seashore's index. The results of this analysis may be found in Table 15. Two of the differences obtained on the Group Dimensions Descriptions Questionnaire were significant at the .10 level, both favoring teachers in the high rated teams. One of the significant differences was in the

Table 14

Mean Personality Scores of Teachers Scoring In the Upper And Lower Half on the Peer Rating-Ranking Criterion

	Mean for Teachers Rated In Upper Half	Mean for Teachers Rated In Lower Half	F
1. CPI - Dominance	32.94	31.65	.92
2. CPI - Capacity for Status	23.48	22.19	2.57
3. CPI - Sociability	28.13	27.45	.43
4. CPI - Social Presence	40.74	39.94	.33
5. CPI - Self-Acceptance	24.39	24.03	.14
6. CPI - Sense of Well Being	39.00	38.87	.03
7. CPI - Responsibility	34.39	32.52	4.27*
8. CPI - Socialization	37.55	37.03	.19
9. CPI - Self-Control	31.32	30.71	.15
10. CPI - Tolerance	26.00	26.19	.04
11. CPI - Good Impression	20.42	20.16	.03
12. CPI - Communicability	26.29	25.90	.92
13. CPI - Achievement via Conformance	31.74	30.58	1.45
14. CPI - Achievement via Independence	23.58	23.90	.12
15. CPI - Intellectual Efficiency	43.19	41.84	2.03
16. CPI - Psychological Mindedness	14.19	13.52	1.18
17. CPI - Flexibility	12.00	15.06	2.24
18. CPI - Femininity	18.87	20.03	1.28
19. Edwards PPS - Achievement	15.65	15.29	.10
20. Edwards PPS - Autonomy	12.06	13.71	2.73
21. Edwards PPS - Order	10.90	10.23	.28
22. Edwards PPS - Endurance	11.68	11.90	.06
23. Edwards PPS - Change	6.32	6.84	.93
24. Edwards PPS - Agression	10.45	10.74	.08
25. Rokeach Dogmatism Scale	156.00	161.48	.84
26. G-Z Personal Relations	11.74	12.35	1.29
27. G-Z General Activity	17.84	15.00	4.44*
28. 16 PF Emotional Stability	38.00	37.68	.08
29. 16 PF Surgency	24.90	27.52	2.86
30. 16 PF Anxious Insecurity	9.23	10.45	.70

*Significant at .05 level.

Hedonic Tone which is defined by Hemphill as the degree to which group membership is accompanied by a general feeling of pleasantness and agreeableness. The second significant difference was in Potency. Hemphill (1956) indicated that "Potency is the degree to which a group has primary significance for its members. It is reflected by the kind of needs which a group is satisfying or has the potenciality of satisfying, or the extend of readjustment that would be required of members should should the group fail, and by the degree to which a group has meaning to the members with reference to their central values," (p. 4). Teachers in high rated teams also obtained significantly higher scores on the Seashore Group Cohesiveness Index. This difference was also significant at the .10 level. These results although not highly significant seemed to provide a number of clues concerning the group characteristics of effective teams that might be worth exploring further in later research.

The next phase of the analysis compared teachers in the upper and lower half of the group on the peer rating-ranking criterion on their responses to the group dimensions. The results of this analysis may be found in Table 16. Three significant differences emerged in this analysis. These differences would indicate that the more effective team members perceive their teams as having a higher level of Intimacy, Polarization and Cohesiveness than do less effective team members.

Chi-square analysis was employed to compare high and low rated teachers on a number of background variables including sex, highest degree held, whether the teacher was teaching in his major or minor field, and others.

Chi-square comparisons were also employed to compare the aforementioned groups on interview questions relating to the teachers attitudes concerning team teaching. These included teacher's perception of the effectiveness of the team leader, estimate of team success in carrying out its objectives, evaluation of teaching improvement in the team teaching situation, teacher's enjoyment of team teaching as compared with conventional teaching, teacher's perception of time wasted in team teaching, teacher's perception of strong unresolved differences among team members, and teacher's perception of the presence of cliques in the team. None of the differences emerging from this series of chi-square analyses were statistically significant.

The final phase of the analysis was concerned with the interactions of teachers in team planning sessions. During the visit to each school, arrangements were made with a member of the team to tape record at least three of the team's planning sessions. At the start of each session, team members identified themselves, and gave a brief statement about their background in order to provide an identified sample of each individual's voice. After the session, the tape recordings were mailed to the investigators. Upon receipt of the tape, two students played each tape and recorded on a special data sheet the length of each remark in seconds and the identify of the speaker. After these data were identified on each tape, two students majoring in psychology were trained in the use of the Bales (1951) system and classified each remark. Since the tapes could be played back repeatedly it was possible to analyze each remark somewhat more carefully than would be possible if the remarks had been classified during the session itself. In order to make as estimate of reliability, 10 of the tapes were independently scored by both students. To estimate reliability, agreement or disagreement

Table 15

Group Dimension Scores of Teachers in Six

Highest Rated Teams Versus Teachers in Nine Lower Rated Teams

	Mean for Teachers in High Rated Teams	Mean for Teachers in High Rated Teams	F
1. GDDQ - Control	29.67	29.51	.01
2. GDDQ - Intimacy	54.26	51.43	2.20
3. GDDQ - Stratification	30.41	30.63	.01
4. GDDQ - Hedonic Tone	23.59	19.89	2.78*
5. GDDQ - Potency	48.11	43.69	3.69*
6. GDDQ - Viscidity	46.89	49.80	1.17
7. GDDQ - Participation	38.85	38.54	.05
8. GDDQ - Polarization	38.59	39.17	.09
9. GDDQ - Flexibility	41.30	42.57	.40
10. GDDQ - Homogenity	33.81	36.14	1.46
11. Seashore Group Cohesiveness	21.37	19.40	3.35*

* Significance at 10% level

Table 16

Group Dimension Scores of Teachers Scoring in the Upper and Lower Half on the Peer Rating-Ranking Criterion

	Mean of High Rated Teachers	Mean of High Rated Teachers	F
1. GDDQ - Control	28.84	30.32	.62
2. GDDQ - Intimacy	54.84	50.48	5.57*
3. GDDQ - Stratification	30.97	30.10	.11
4. GDDQ - Hedonic Tone	21.97	21.03	.17
5. GDDQ - Potency	47.10	44.13	1.63
6. GDDQ - Viscidity	50.26	46.81	1.69
7. GDDQ - Participation	39.39	37.97	1.08
8. GDDQ - Polarization	42.29	35.55	14.92**
9. GDDQ - Flexibility	42.94	41.10	.85
10. GDDQ - Homogenity	36.16	34.10	1.16
11. Seashore Group Cohesiveness	21.54	18.97	6.10*

* Significant at .05 level

** Significant at .01 level

on each specific remark was determined for the two raters. In other words, each specific remark was checked to see whether the two raters had classified it in the same Bales catagory or a different Bales catagory. The level of agreement between the raters was very high on these comparisons, ranging from 84.1% to 92%.

Based on the combined peer rating-ranking criterion, teachers were divided into three groups constituting approximately the upper, middle, and lower one-third. A single classification analysis of covariance was then calculated from each of the dependent variables obtained from the Bales data. The results may be found in Table 17. It will be noted that a number of significant differences emerged. Teachers classified in the upper one-third on the criterion made a significantly higher percentage of remarks than those in the middle or lower one-third. These teachers also made fewer minimum time remarks than the lower rated groups, although this difference was not significant. A minimum time remark was usually a single word or short phrase requiring one second or less such as yes, no, OK, I will, and so on. Marked differences were also obtained when the amount of time used by different teachers was compared. The upper and middle rated teachers used about twice as much time as teachers rated in the lower one-third. Thus, we find that high rated teachers participate considerably more often in the team planning session and make longer remarks.

The remainder of the comparisons showed in Table 17 are concerned with the specific classification areas employed in the Bales technique. No significant differences emerged in the three remark areas classified by Bales as "positive social-emotion". These include "shows solidarity," "shows tension release," and "agrees." In all three of these classifications,

Table 17

Bales Classification of Small Group Interactions of Teachers Scoring in the Upper, Middle and Lower Thirds on The Peer Rating-Ranking Criterion

	Upper 1/3	Middle 1/3	Lower 1/3	F
1. Percent of remarks made by teachers in first 3 team planning sessions	30.11	23.19	19.50	3.53*
2. Percent of teacher's remarks in first 3 sessions that were minimum time remarks	18.83	20.48	22.50	.68
3. Percent of time used by teachers in first 3 sessions	40.11	38.14	21.69	4.09*
4. Number of "Shows Solidarity" remarks	5.72	5.38	4.25	.26
5. Number of "Shows tension release" remarks	5.83	8.62	4.00	2.03
6. Number of "Agrees" remarks	70.94	73.52	58.19	.60
7. Number of "Gives Suggestions" remarks	46.61	35.67	18.56	5.71**
8. Number of "Gives Opinion" remarks	236.72	184.62	130.62	4.65*
9. Number of "Gives Orientation" remarks	212.94	162.09	112.56	4.31*
10. Number of "Asks of Orientation" remarks	37.22	42.95	24.69	1.76
11. Number of "Asks for Opinion" remarks	16.72	14.48	7.13	3.18*
12. Number of "Asks for Suggestion" remarks	2.67	1.67	.94	1.92
13. Number of remarks in negative social emotional area	1.72	3.67	3.06	1.51

*Significant at .05 level
**Significant at .01 level

however, teachers rated in the lower one-third made somewhat fewer remarks than those in the upper two-thirds. Bales classifieds the next three catagories as attempted answers. These catagories are, "gives suggestions," "gives opinion," and "gives orientation." They are related to the task and are considered to be neutral in terms of social-emotional content. It will be noted that large and statistically significant differences between teachers in the three subgroups were present for all three of these classifications. In these areas, teachers in the upper one-third made the largest number of remarks followed by those in the middle one-third and lower one-third. It will be noted that the higher rated teachers made about twice as many remarks classified as suggestions, as giving opinion, or orientation.

The next three catagories in the Bales system involve questions related to the task area and are also classified as neutral in terms of social-emotional tone. Data in these 3 areas show the same pattern described above although differences were somewhat smaller, probably because of the smaller number of remarks occurring in these catagories. Only in the "asks for opinion" area did the upper group of teachers make significantly more remarks than the lower group.

The final three catagories in the Bales system involve negative remarks in the social emotional area and include "disagrees," "shows tension," and "shows antagonism." Because of the very small number of remarks made in the team planning sessions that could be classified into one of these catagories, remarks in the negative social emotional area were combined. It will be noted in Table 17 that although the middle and lower rated teachers made about twice as many remarks in these catagories as teachers rated in the upper one-third, the difference was not statistically significant.

In summary, it appears that there are a number of differences among teachers classified in the upper, middle and lower third on the peer rating-ranking criterion. Higher rated teachers made a larger percentage of the verbal contributions, and generally made longer remarks than lower rated teachers. They also tended to make somewhat more contributions in the positive social-emotional area and fewer in the negative social-emotional area. The greatest difference among the teacher groups, however, was in the task area where the higher rated teachers much more frequently gave suggestions, opinions, and orientation. With regard to task oriented remarks involving questions, the higher rated teachers again made a larger number of such remarks although the differences were smaller than in those catagories related to attempted answers. These data suggest that the participation patterns of effective team teachers in the team planning sessions differ considerably from the patterns of teachers considered less effective on the peer rating-ranking criterion. It appears that considerable insight into a teacher's performance as a team member might be gained by evaluating his participation in team planning sessions.

SUMMARY AND CONCLUSIONS

This paper reports a survey of 533 team members and 242 principals from schools in which team teaching was employed and an assessment of 63 teachers from 15 teams. The objectives of the survey were to collect descriptive data on team teaching programs and tentatively identify the characteristics of teachers who adapt well and poorly to team teaching.

Principal Survey

A survey of 242 principals of schools using team teaching indicated that:

1. A substantial percentage of current team teaching programs are exploratory, employing only one team.

2. About half of the respondents reported inadequate planning prior to the start of their team teaching programs.

3. The organizational and instructional techniques most often combined with team teaching were; flexible class size, ability grouping, and individualized instruction.

4. Principals at all levels perceived the most difficult administrative problem associated with team teaching to be adapting available space to team teaching.

5. In large schools the principal usually worked with the team leader on administrative matters, while in smaller schools he worked with the entire team.

Teacher Survey

A survey of 533 teachers who were members of teacher teams indicated that:

1. The majority of teams worked with pupils at a single grade level, and usually taught all subjects at elementary level and one or two subjects at secondary level.

2. Teacher specialization in both teaching and preparation of curricular materials is the usual pattern.

3. Strong leaders with definite administrative responsibilities are found in a minority of the teams; the more predominant structure being to have no official leader or one with little or no administrative authority.

Adapting to Team Teaching

Both principals and teachers were surveyed concerning their perceptions of the characteristics of teachers who adapt well and poorly to team teaching. The data indicated that:

1. It appears that to adapt well to the team teaching situation, the teacher needs some of those characteristics that are desirable for teachers regardless of the teaching situation, such as enthusiasm and thorough training in their subject matter field.

2. On the other hand, to be effective in team teaching, certain characteristics are desirable that may be relatively less important in the conventional classroom. Such characteristics as flexibility, ability to cooperate and work effectively with other adults, organizational skill, consideration for others, and ability to accept constructive criticism all seem to fit into this catagory.

3. Thus, although it appears doubtful that a teacher who is exceptionally good in his own classroom would be exceptionally poor on a team, it does seem reasonable to expect that most teachers will differ

in their ability to adapt to these different teaching approaches. Team teaching seems to require different amounts of certain skills and characteristics, and probably gratifies different psychological needs.

4. Future research should help to define better these characteristics, and should lead eventually to the point where research can help the administrator build teams of optimum effectiveness from those teachers available. When we can organize teams that we can predict will work together compatibly and will effectively achieve their educational objectives, a major problem of team teaching will be solved.

The Assessment

In the assessment phase of the study 63 teachers from 15 secondary school teams were tested, interviewed and observed. All participating schools had well established team teaching programs. Measures included four personality inventories, four measures of leader and group behavior, an interview, and interaction data collected by tape recording three team planning sessions for each team and analyzing remarks using the Bales (1951) system of interaction process analysis.

The principal criterion of team member effectiveness was a combined peer rating-ranking obtained during the interview. Principal's ratings of team effectiveness and interview responses related to teacher attitude were employed as secondary criteria. Data were analyzed using analysis of variance and chi square.

The results of the assessment indicated:

1. Teachers scoring higher on the principal criterion made significantly more favorable scores on the Responsibility subscore of the California Psychological Inventory and the General Activity subscore of the Guilford-Zimmerman Temperament Survey (.05 level).

2. Teachers scoring higher on the principal criterion perceived their teams as having a higher level of Intimacy, and Polarization on the Group Dimensions Descriptions Questionnaire and a higher level of Cohesiveness on the Seashore Group Cohesiveness Index.

3. Teachers scoring higher on the principal criterion were not significantly different from lower rated teachers on a number of background variables and attitude responses obtained in the interview.

4. Teams rated highest by their principals obtained more favorable scores than lower rated teams on the following variables.

a. Hedonic Tone and Potency subscores of the Group Dimensions Descriptions Questionnaire.

b. Cohesiveness as measured by the Seashore Group Cohesiveness Index.

5. Comparisons of team planning session interactions of teachers ranked in the upper, middle and lower thirds on the rating-ranking criterion showed higher rated teachers to be significantly higher on the following variables:

a. Percentage of total remarks

b. Percentage of time used to make remarks.

c. Number of "Gives Suggestions" remarks.

d. Number of "Gives Opinion" remarks.

e. Number of "Gives Orientation" remarks.

f. Number of "Asks for Opinion" remarks.

6. These data suggest that more effective teachers participate more in planning sessions and contribute a significantly greater number of task-oriented remarks than less effective teachers.

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